

WHAT IS CLAIMED IS:

1. A test fixture, comprising;
 - 5 a table moveable in a first direction, wherein the table is adapted to secure a substrate embodying a trace conductor having opposing ends;
 - a probe pin moveable in two directions perpendicular to the first direction, wherein the probe pin is adapted to contact a first one of the opposing
 - 10 ends.
2. The test fixture of claim 1, further comprising a probe needle adapted to contact a second one of the opposing ends.
- 15 3. The test fixture of claim 2, further comprising a test device for sending and receiving signals to the probe needle and the probe pin.
4. The test fixture of claim 1, wherein the probe pin moves along axes parallel to and perpendicular to a planar surface on which said first one of the opposing ends is arranged
- 20 for contacting an upwardly extending distal end of the probe pin with a downwardly extending said first one of the opposing ends.
5. A test fixture, comprising:
 - 25 a pin retainer for retaining an upwardly extending pin;
 - a semiconductor substrate retainer having a trace conductor with one end of the trace conductor arranged above the pin; and

a mechanism for moving the pin retainer and semiconductor substrate in two dimensions for aligning the probe pin onto said one end of the trace conductor.

5 6. The test fixture of claim 5, wherein an end opposite said one end of the trace conductor is adapted to receive a probe needle, and wherein a test device is coupled between the probe needle and the pin.

7. The test fixture of claim 6, wherein the test device forwards stimuli and receives
10 response, during use, for testing integrity of the trace conductor.

8. The test fixture of claim 6, wherein the test device is a multi-meter for testing open circuit or short circuit conditions of the trace conductor.

15 9. The test fixture of claim 5, wherein the substrate retainer comprises:

a table;

a pair of elongated walls secured to the table and extending orthogonal to each
20 other; and

a push plate slideably attached to the table for securing the substrate onto the table between the push plate and the pair of elongated walls.

25 10. The test fixture of claim 9, wherein the push plate is secured in position upon the table by a thumbscrew secure pin.

11. The test fixture of claim 5, wherein the mechanism comprises:

a first lead screw that, during rotational movement of the first lead screw, extends
against the pin retainer; and

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a second lead screw that, during rotational movement of the second lead screw,
extends against the semiconductor substrate retainer.

12. The test fixture of claim 11, wherein the mechanism comprises a third lead screw
that, during rotational movement of the third lead screw, extends the pin upward in a
dimension perpendicular to the two dimensions in which the pin retainer and
semiconductor substrate retainer move.

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13. A method for testing a semiconductor package, comprising:

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moving a substrate bearing a downwardly extending terminal end of a trace
conductor along an x-axis; and

moving an upwardly extending pin along a y-axis and a z-axis to make contact
with the downwardly extending terminal end.

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14. The method of claim 13, wherein prior to said moving steps, further comprising:

removing at least a portion of an integrated circuit bonded to an upper surface of
the substrate; and

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holding the substrate on a moveable table for exposing a backside surface of the
substrate bearing the downwardly extending terminal end to the upwardly
extending pin.

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15. The method of claim 13, wherein after said moving steps, further comprising:

contacting a probe needle to an upwardly extending terminal end of the trace
conductor opposite the downwardly extending terminal end;

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applying electrical stimulus to the probe needle and the pin; and

measuring a response.

10 16. The method of claim 13, further comprising:

transmitting an electrical pulse along the trace conductor;

measuring a time delay of an ensuing reflected pulse; and

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determining from the delay time a location of high resistance defect in the trace
conductor as either residing inside or outside the substrate.

17. The method of claim 15, wherein said measuring comprises measuring electrical
20 resistance of the trace conductor between the probe needle and the pin.

18. The method of claim 14, wherein said removing comprises grinding the integrated
circuit.

25 19. The method of claim 14, wherein said holding comprises retaining the outer
periphery of the substrate above the table by securing opposed outer portions of the
substrate between a moveable sliding push plate and elongated walls mounted to the
table.

30 20. The method of claim 15, wherein said contacting the probe needle comprises
using a magnifying lens for aligning and contacting the probe needle.